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ABSTRACT

This paper provides a summary of class-size research, most of it conducted since 1970. Points are presented as suggestions for policy, for use in schools, and as a basis for added research. Combining the results of various studies allows for some speculation about the possibilities for implementing small class size in the elementary grades. Research provides the basis for decisions about class size, but the wisdom and will to redirect educational policy cannot be communicated unless educators, leaders, and parents act to use what research has shown to improve schooling. Small classes for elementary school students constitute the "Individual Retirement Account" of education. (Contains 1 table and 58 references.) (SLD)

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UNDER-UNDERSTANDING SOLID RESEARCH.

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by

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> The study lasted for four years and, in my opinion, is the most significant educational research done in the US during the past 25 years. (Orlich, 1991, p. 632).

> Wisdom is not communicable . . . Knowledge can be communicated, but not wisdom. One can find it, live it, be fortified by it, do wonders through it, but one cannot communicate and teach it." (Hesse, 1951 p. 144)

Introduction

This paper provides a summary of class-size research conducted primarily since 1970. Points are presented as thoughts for policy, for use in schools, and for added research. Modest speculation derived from combining the results of various studies is also advanced. At best, the material was planned to communicate much of the knowledge derived about class size in early primary grades that has been collected over the years. The wisdom and the will to begin to redirect education policy and practice cannot be communicated. Educators, leaders, and parents must generate the will to use what research shows will improve schooling. Collective wisdom mandates that the investment in young people is not only long overdue, it is appropriate, decent, and the duty of people of integrity. Small classes for little kids constitute education's IRA.

Small is Better; Less is More

Energized by the Glass and Smith (1978) and Smith and Glass (1979) meta-analyses and followed by some class-size interest and research in the United States and Canada from about 1978-1982, it's taken approximately 20 years for class size to be taken seriously as a major factor in education, and about 10 years for results of the STAR (Student Teacher Achievement Ratio) education experiment to have relatively wide-spread consideration in American education. The STAR experiment and carefully evaluated

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implementations of small classes have shown a "class-size effect" that includes a wide range of positive outcomes for students, teachers, parents, and eventually for society. The class-size change causes the new outcomes.

The STAR, Lasting Benefits Study (LBS), Challenge, and STAR Follow-up results have been made widely available in articles, research reports, conference papers, monographs, and ERIC entries. Eventually, STAR findings attracted some attention and received positive critical comments from respected researchers. STAR was a tightly controlled, longitudinal experiment of class size that corrected for many of the weaknesses identified in prior class-size studies. The LBS, Challenge and STAR Follow-up projects extended the STAR experimental work. After his year-long review of the STAR studies, Professor Emeritus Frederick Mosteller at Harvard commented that experimental studies like STAR should provide a basis for education policy and for changes in practice (1995).

> . . . the Tennessee class size project, . . . illustrates the kind and magnitude of research needed in the field of education to strengthen schools (p. 113). . . . it is important that both educators and policy makers have access to its statistical information and understand its implications. (p. 126).

By re-analyzing the K-3 STAR data, Princeton economist and education production-function researcher Professor Alan Krueger (1997, 1998) confirmed the original STAR K-3 findings and extended those analyses in ways that could help leaders make policy decisions. Krueger's analysis supported the idea that positive outcomes could be obtained with only small differences in class sizes, in the range of 22-25 students, a class-size range of interest to persons who were considering large-scale (statewide) changes such as in California. Krueger (1997) added his voice to Mosteller's that STAR was a well conceived and important study.

Professor Mosteller (1995) and Professors Mosteller, Light, and Sachs (1996) argued forcefully that STAR and similar experiments should be used to inform educational policy decisions. Professor Krueger (1997) explained why people should rely heavily on STAR results compared to earlier class-size studies, [or studies of pupil-teacher ratio (PTR) that were mislabeled as class size studies] and how mixed results of some earlier studies can be explained by reviewing them in light of STAR findings .

> One well designed experiment should trump a phalanx of poorly controlled, imprecise, observational studies bases on uncertain statistical specifications. (Krueger, 1997, p. 27).

By 1999, approximately 38 states either had class-size legislation, had debated the topic seriously, had taken state board of education action, or had initiatives to test class-size reduction in various conditions. Educators and policy persons in several foreign countries were considering or using class size to redesign their education systems. There has been some federal interest in class-size adjustments, especially in America's poorest schools, but the President's 1998 proposed class-size initiative ran into roadblocks including: political ideology; criticism from some persons who mistake class size and pupil-teacher ratio (PTR), or who advocate other education changes; and the facilities crisis brought about from a) long-standing facilities neglect, b) increasing enrollments, and c) the move to smaller classes with the mindset that only classrooms in traditional school will do for small groups of K-1 students.

> "Now we must make our public elementary and secondary schools the best in the world ... and every parent already knows the key, good teachers and small classes. Tonight I propose the first-ever national effort to reduce class size in the early grades. . . . With these teachers, we will reduce class size in the first, second, and third grades to an average of 18 students in a class." (W. Clinton, *State of the Union Address*. 1/27/98; cited in the NY Times, 1/28/98, p. 19A.)

Some Contentiousness in Using Class-Size Results

Uses and proposed use of STAR findings have generated predictable controversy in the public media and the professional literature, and among researchers, politicians, and policy people. In truculent tomes reminiscent of R. Callahan's 1967 Education and the Cult of Efficiency some claim that there may be more efficient ways to improve student achievement or that it is expensive to reduce class size in the early grades. This amazing assault on serious longitudinal, replicable research is based on little but speculation -- Shakespeare might have said "sound and fury" -- and questionable logic. For example, how can we really understand the "efficiency" of reducing class sizes until there are enough small-class activities around to allow the serious study of them? Most dire cost predications about the burden of small classes do not factor in cost savings, long-term benefits, or systemic changes that small classes may precipitate.

Class Size: Pervasive and Persuasive

Has any research shown harmful effects of small classes, or that larger classes are better for children? What successful education projects or interventions do not rely on a small-class effect? How much success of some popular projects might be attributed to a small-class effect if the evaluations took class size into account as a separate variable? Tutoring and cooperative learning are class-size efforts. Alternatives to regular public education thrive upon a small-class effect: Home schooling, alternative schools, charter schools, expensive private schools, apprenticeships.

The anti-class-size literature is replete with hypothetical discussions of how something else (we're not quite sure what that is or how it might be done) might be a better or less expensive way to get at the same achievement and behavior outcomes that we're getting in small classes. They usually neglect student behaviors or affect. Favorite suggestions include spending the funds for technology, for incentives, for staff development, or for more projects.

Discussions about alternatives to class size outcomes should continue. However, we're just now beginning to understand the long-term effects of early small-class education on later student behavior (e.g., Bain, et al., 1997). The STAR Follow-up Studies show long-term outcomes in terms of education and social benefits, such as student drop-out, discipline actions, retention in grade, high school courses of study and grades achieved. Students in high school in 1996-1997 who began school in STAR smaller rather then larger classes in 1985 had substantially better long-term outcomes: higher grades, less retention in grade, etc. These results are similar to the long-range outcomes of the Perry Preschool Project (Barnett, 1985, 1995; Weikert, 1989; 1998, etc.). New policy analysis research might review the "trade-offs" in various class-size implementations, such as options involving space use; social cost/benefit questions associated with the high costs of retention, remediation, special education, student indiscipline, etc.; and how class size change has the potential to influence many education practices and be the base for the systemic change that many suggest is vital for education's survival and renewal.

Some Economic Questions Surrounding Class Size

Critical discussion and lively debates about class size, production functions, and cost-benefit in education have been initiated by economists, policy persons, educators, and others. [E.g., Burtless, (1996), Hanushek (1995, 1996, 1998), Hedges and others (1994, 1996)]. Recent interest in the economics of class-size processes and outcomes is evident in the work of Angrist and Lavy (1996), Boozer and Rouse (1995), Card and Krueger (1996), Correa (1993), Krueger (1997, 1998), and Wenglinsky (1997).

In future policy research, class-size issues might be connected to space usage (proxemics) and the possibility that crowding little children may contribute to later difficult behavior, such as the onset and nurturing of gangs in schools, or that large classes produce stale air that adds to teacher fatigue and student inattentiveness late in the school day. How does early schooling in small classes extend recent findings of brain research, cognitive psychology, neuroscience, group dynamics and community? Small classes increase student participation in and identification with school (Finn, 1989, 1993, 1998). If this leads to a positive trajectory of success in school and the probability that students will not drop out, does this support Lindsay's (1982, 1984) findings that school participation carries over into young adult participation in society?

What are the implications of small classes for use of space, time, and technology in schooling? For improved school-home relationships? For innovative use of personnel?

As more answers become available about uses and outcomes of small classes in education, information about the efficiency of small class size should also become available. The STAR-generated class-size research has answered the question about the effectiveness of early small-class interventions. What should be the relationship between efficiency and effectiveness when we're talking about people, and particularly about the youngest people who are beginning their long trek through our education system? How efficient is it to foster educational conditions that lead to school dropout, or grade retention, or "achievement gaps?"

Bloom (1984 a & b) asked educators to seek answers to his "2-sigma problem" and "search for methods of group instruction as effective as one-to-one tutoring." The 2-sigma problem was to try to match the outcomes of tutoring that could move a student about two standard deviations (2 sigmas) up the learning-outcome curve on standardized measures. Tutorials for every student in the public school system in every subject, however, would be impractical and extraordinarily expensive. How can educators approximate those learning outcomes in a group setting? Appropriate-sized classes in K-3 are a start. They offer three socially-desirable benefits that are expressed American values. Those benefits of Quality, Equality, and Equity provide measurable positive outcomes and one mnemonic for education improvement: Better Education = QE^2.

- Quality. Many indicators, including higher achievement in academics, behavior, citizenship, and development show the quality of small classes.
- Equality. All participants get the same treatment. No group gets more or less than another. Each student gets the same-sized scoop of ice cream.
- Equity. Minority and hard-to-teach youngsters benefit more from small classes than do other youngsters, but all who benefit in a small class benefit in positive ways. (Achilles, Finn, & Bain, 1997-98; Finn & Achilles, 1990; Robinson, 1990; Wenglinsky, 1997, etc.).

Improved Education = QE^3: Small classes offer Quality, Equality, Equity

Class-size Research Squares with Common Sense

One beauty of class-size research is that for once education research results parallel common sense. Teachers know that they can teach better in small classes. Parents consistently ask that their youngsters be put into smaller classes and the parents get really involved at the school when the classes are small. (So parent-involvement problems are ameliorated). Most projects and "treatments" for problem students rely on small classes or small numbers of youngsters with a single teacher, so small classes for all children provide overall school improvement. The often-espoused but seldom-employed "individualized" instruction idea actually becomes possible when a teacher has a manageable number of youngsters, and the teacher can realistically be held accountable for student learning and achievement.

The class-size research raises many questions about early schooling and the use of small classes generates problems that require serious work. Besides the PTR-class size difference, educators may need now to consider space vs. classrooms, use of remote or satellite primary-grade centers connected by technology to a home-base school, re-assignment or re-deployment of some educators, and alternate ways to prepare teachers. Small classes raise issues of space and crowding, and subsequent student behaviors. Small classes intersect with school size as an important schooling variable. [Small classes mitigate the negative outcomes of big schools. Nye, K. (1991)]. In addition to the stand-alone benefits of small classes, class size and the Effective School Correlates fit well together, and this validating mutual support is reassuring.

Table 1 aligns of the Effective School Correlates with selected outcomes of 15:1 classes. Appropriate-sizes classes in the primary grades get an effective school off to a head start. Consider the following similarities between the Effective Schools Correlates and class-size outcomes.

- Emphasis on and acquisition of basic skills. Teachers in small classes report that the students complete the lessons in less time than do students in larger classes, leaving time to teach for mastery. Test results continuously show that students in small classes outperform students in large classes on both standardized and criterion-referenced tests.
- High expectations for students and others in the school. Teacher morale and intrinsic rewards from positive student outcomes lead to high expectations that students will succeed. Teachers believe that they can help students learn more in small classes, and administrators and others expect students and teachers to do well in small classes.
- Frequent monitoring of student progress. Teachers report being able to read with each child daily, and hearing each child respond or recite in the small class. Teachers use alternative forms of assessing student learning and are able to diagnose student learning difficulties
- A positive climate conducive to learning. With fewer children in a class there are more space per child and more materials, toys, and places for learning centers. This reduces student and teacher stress and student indiscipline; it improves student personal relations, group dynamics, and student-teacher interaction.
- Sufficient opportunity for learning. Small classes increase student time on task, allow use of a variety of centers to activate multiple intelligencies, increase the numbers of learning materials/books available for each child, and make it possible for teachers to employ the good teaching practices that they know about but that large classes had hindered them from using.
- Parent and community involvement. Research has shown that small classes bring with them an increase in parent involvement and interest in schooling. School administrators report increased support for and confidence in schools when there are small classes. Teachers can get to know a student's family.
- Strong school leadership. The class-size research has not yet provided results about this effective school correlate. Anecdotal evidence points to the need for leadership to solve problems: innovative approaches to scheduling, to find spaces for small classes, alternative use of staff. At the district level, especially, small classes provide opportunities for leaders to exercise creativity to solve problems related to space, finding certified teachers, reporting to parents and the media, etc.

TABLE 1 ABOUT HERE

If the Effective Schools Correlates make sense and have helped improve schooling, it should not be a surprise to find close connections between them and class-size elements.

Teacher Aides: A Policy Conundrum

The research emphasis on class size has overshadowed the teacher aide question that has not yet been fully examined by STAR researchers. STAR's in-school experimental design could as easily make STAR an experimental study of teacher-aide effects as a study of class-size effects. Zaharias and Bain, two STAR researchers, compiled Teacher Aides and Student Learning, Lessons from Project STAR (1998) for Educational Research Service, but more analysis of aide effects remains to be done. Of the three STAR conditions, the Small class (S) was best, generally followed by the Regular class (R) and then by the Regular class with a full-time instructional aide. (RA). This experimental finding may help explain mixed results obtained in Prime Time where a teacher aide could be used to change the student-to-adult ratio in lieu of establishing a second class. (Chase, Mueller, & Walden, 1986; Tillitski et al., 1988). STAR was not the first study to conclude that aides did not help student outcomes (e.g., Davidson, Beckett & Peddicord, 1994). Achilles et al. (1993) also questioned the sub-par performance of the teacher-aide classes in STAR.

Macro-level evidence on teacher-aide effects is contained in the generally poor results obtained by Title I over the years. (LeTendre, 1991; Borman & D'Agostino, 1996; Wong & Meyer, 1998). Much of Hanushek's (1998) analysis of the "effects of class size" really presents analysis of pupil-teacher ratio (PTR) effects (Tables 3-6, pp. 16-24 in Hanushek, 1998 are even labeled PTR while proclaiming to provide evidence on class size), and this could include teacher aides, depending on how data are reported. He concluded that class size (sic) [or PTR (really)] has little effect on student outcomes. Besides Prime Time, the Nevada class-size initiative is getting mixed results, and because of space limits, one class-size treatment in Nevada is two teachers in a class of 30-35 students. The inevitable conclusion from combining these results is that class size, not teacher aides, influence student outcomes.

The teacher-aide findings present serious policy problems. Teacher aides constitute a large population of education workers. Use of teacher aides is an employment and economic, as well as an education, issue. Many teachers like and rely on teacher aides. Teacher aides often live in the immediate community served by the school and know the community and the people there; the teachers may commute. As demography and education practice change, teacher aides may be important in assisting a teacher with inclusion—the placement of special-needs students in the regular classroom

rather than in resource rooms or self-contained settings. Teacher aides may be indispensable in helping teachers with bilingual or English as a Second Language (ESL) and Limited English Proficiency (LEP) students and in helping teachers understand the cultures of students from the community.

Yet, using teacher aides where they are not absolutely indispensable for the sorts of reasons stated above, is to support employment and job generation with funds that could be used to reduce class sizes and benefit students. The efficient and effective use of teacher aides is an area begging for more solid research.

Class Size and Safety

School safety has been illuminated in the harsh glare of some shocking violence, and also vastly overstated. (In 1997-1998 eleven children were killed by gunfire in schools and over 3,000 were killed by gunfire outside of school. Federal legislation and funding have followed the national goal of achieving safe and drug-free schools. A tenet of effective schools is a positive and safe school conducive to learning. Lindsay (1982, 1984), Finn (1989, 1993, 1998) and others have explained the connection between participation in and identification with school and short and long-term benefits to students and society and class-size and school-size. Class size and school size are administratively mutable variables.

Class-size research shows that outcomes associated with small classes (and with small schools) are the foundations of safe schools: improved student behavior and human relations skills; increased participation in schooling and school-sanctioned events; and increased sense of community and family in small classes; and a generally imp[roved school climate where teachers, students, and parents feel less stress than in larger classes and larger schools. Smallness promotes familiarity with and knowledge of individuals that can head off violence before it happens. Although much connects the use of small classes and schools to positive student behavior, much research remains to be done here. The research needs to be long-range, and can only be done as small classes become available for the research. The analogy, however, of the use of small classes in successful alternative schools for difficult youth is a powerful guideline.

School-Wide Remedial Projects

Given the presence of a class-size effect and the competing costs of some school-wide remedial projects such as the popular and useful Success for All (SFA), serious analyses should be done to determine what portion of projects can be attributed simply to their use of small classes to get their gains. If projects provide little benefit for their costs over and above what could be gained by school-wide class-size reduction, projects should be held to strict cost-benefit analyses. Perhaps the school-wide initiative should be small

classes and projects should target the small number of especially difficult students who need even more direct individual attention than small classes allow. Most remedial projects used in schools today are sold at substantial prices. Some projects were developed with federal funds—tax dollars. Concerning this situation, Levin (1998) made the following observation:

> In fact, I believe that they ought to be made available at low cost and question why they are sold commercially at high prices, given the substantial grants and subsides provided for their development by government agencies. . . presumably to reduce costs and promote their use (Levin, 1998, p. 9).

Unfortunately, some projects that rely on class-size effects to get their positive results also drive the project-mentality, "pull-out" or "add-on" approach to education. To the extent that these projects use both pull-out and teacher-aide treatments, the class-size effect may have extra hurdles to leap! The "add-on" and teacher-aide processes have grown in popularity since Title I (1965, P.L. 89-10) and have not been seriously researched outside of the general evaluations of Title I over the years. Class size has been seriously researched and found to work. The class-size research helps address the Miles and Darling-Hammond (1998) concern that "very little research addresses how schools might organize teaching resources more effectively at the school level." (p. 9). Research on redeployment of teaching resources should carry over into the use of teacher aides, especially if aides are major components of special projects.

Student and Teacher Interactions and Benefits

Success Starts Small (Achilles et al., 1994; Kiser-Kling, 1995) offered an interesting opportunity. Three of the four teachers who had the small classes (15:1) in grade 1 began their teaching careers in those small classes—except for student teaching in "regular" classes, they did not have experience teaching in larger classes. A cynic might say that they had not yet developed bad habits from years of teaching hordes of children herded into cramped space The elementary school principal who had used Title I funds to reduce class sizes (15:1) instead of using the traditional "pull-out" programs interviewed the teachers as a group after their first year of small-class teaching. The following are summarized responses of the four first-grade teachers to their principal's (Jean Owen, EdD) quantitative questions about their approximate 60 students. A few teacher-narrated anecdotes about teaching in small classes follow the summarized responses. The answers and the anecdotes offer a snapshot of the benefits to students and teacher that occur in small classes.

Anecdotes

Questions about reading, mathematics and acceptable behaviors:

1. "How many of your students are reading?" 42 or 84% are reading (Of the 8 not reading, 3 are being assessed for EMH self-contained, 3 for LD and 2 seemed to be emerging as readers)
2. "How many of your students can do math?" 44 or 88%
3. "How many students were referred for severe discipline problems" 3 or 6%
4. "If you had a regular class size of 24 to 28 students, how many of your students might develop severe discipline problems'?" 19 or 38%
5. "If you had a regular class size of 24 to 28 students, how many of your students might be referred to special classes?" 8 or 16% (8 is the enrollment of many self-contained classes)

The teachers offered a series of anecdotes about their children

1. If I had 28 students as I did in my practice teaching, and had them all in rows, there is no way I could accommodate the learning of the 5 very low functioning children. As it is they will probably go to a self-contained classroom as second graders (when they no longer have the small-class option). But in the meantime, I can see they are learning, they see themselves as successful, vital persons in our class. Other students assist them in doing their work.
2. In this 15:1) situation, not only did I know the students very well, they know each other very well. They know who can do what -- who can help spell a word, who can read, who has been sick and with what. Quotes from students: I'll bet Heather can read that hard book. Dericas is sick. Do you know what is wrong with him? I dropped by Derica's and saw him and he really is sick. When Anthony came back after several days of sickness, they all cheered that he was back.
3. Some of my children who haven't started to read yet, want to read and do "pretend reading." Their classmates patiently and knowingly accept that and help them with their pretend reading. They move the marker or tell them the words.
4. The troubled children who need a lot of attention from me get that attention. With the 24 students I had in my practice teaching situation, I would not have had the time to give that attention, so the students would have begun to act out and would become discipline problems. I have the time and the relaxation to give the attention to the child who needs a minute or so more without worrying about losing the other children and the class as a whole.
5. I feel like I am being a successful teacher to all the students.

6. I really know where my children are in their learning because I can ask them how they figured something out. I can focus more on each of them diagnosing just how they learn.

7. With the 5 very low students in my small class, I have time to try several different ideas to help them. With 24 students, I'd have time to try one or two and they might not work, so the child would probably be referred out of the big class.

8. I had enough unifix cubes for each student to work with 100 cubes when we studied the concept of 100.

Use RESEARCH! Class Size, Not PTR, Should be a Policy Base

Policy decisions and evaluations of education outcomes need to be made separately for class size and for PTR. Mingling class size and PTR causes confusion, blunts the positive impact of class size and hides shortcomings associated with PTR.

Hanushek (1998) stated the class size and PTR confusion succinctly: "The discussion until now has focused on pupil-teacher ratios, but pupil-teacher ratios are not the same as class sizes" (p. 12). The hesitation of leaders in advocating small classes and the tortuous approach to understanding the power of small classes for children and for teachers have been driven by uncritical acceptance and substitution of PTR results as class-size outcomes over time. People who have developed reputations in policy circles by arguing that class size does not matter based upon their analyses of PTR and PTR outcomes are understandably reluctant to review their positions now.

"Class-size reduction" at least suggests that some rational, research-based class size is in general use. What is the research base upon which present class sizes are built? After Bloom's (1984) pioneering work, the current class size research is providing the first serious look at what class sizes might be needed today to meet the challenges to educators of the changing contexts and demographics of education's clients.

Federal Policy Trends: Small Classes are Good Policy and Good Politics

The federal policy debate about class size may be shifting slightly toward smaller classes. In a 1988 report, Class Size and Public Policy: Politics and Panaceas, the federal policy position was summarized by Tomlinson as:

> Evidence to date . . . does not generally support a policy of limiting class size in order to raise student achievement or to improve the quality of work-life for teachers; nor does it justify small reductions in pupil/teacher ratios or class size on order to

> enhance student achievement. Research also fails to support school policies designed to lower class size if these do not first specify which pupils will benefit and how and why they will do so. (p. 37) (Note the class-size PTR confusion. CMA).

By 1997, the U.S. Department of Education's report, Building Knowledge for a Nation of Learners included the statement that "studies . . . such as reducing class size in the primary grades, have proved to help children get a good start in school" (p. 29). This report was followed in 1998, ten years after the Tomlinson report, by Reducing Class Size: What Do We Know (Pritchard, 1998) which included the statement,

> Reducing class size to below 20 students leads to higher student achievement. However, class-size reduction represents a considerable commitment of funds, and its implementation can have a sizable impact on the availability of qualified teachers. . . . There is more than one way to implement class-size reduction, and more than one way to teach in a smaller class. Depending on how its done, the benefits of class-size reduction will be larger of smaller. (p. 14)

In a 1998 U. S. Department of Education-commissioned report, Class Size and Students At Risk: What is Known? What is Next? (Finn, 1998) concluded that "A clear small-class advantage was found for inner-city, urban, suburban and rural schools; for males and females; and for white and minority students alike" (p. 13), and that there is lots of room for added research to address many lingering issues and questions. There won't be much class-size research until there are small classes for researchers to study.

The shift in emphasis on class size by the U. S. Department of Education may be based on newer class-size studies, but it reflects political agendas of the times. The total amount of federal funding for education is minor when compared to local and state support, so efforts to get small classes for young children need to target state and local policy makers more than federal officials. Federal education funding is primarily categorical, directed to specific groups or for narrow purposes, such as, bi-lingual education, at-risk students. Funding for class-size reduction is general or across-the-board so that all students in the grades affected would benefit. Another approach to using small classes that makes sense when funds are limited would be to target class-size reductions to schools or even to classes that have high densities of students whom smaller classes have been shown to help more. Wenglinsky, (1997) said:

> In other words, fourth graders in smaller-than-average classes are about a half a year ahead of fourth graders in larger-than-average classes (p. 24) . . . The largest effects seem to be for poor students in high-cost areas. (p. 25).

A Caveat About "Standardized" Comparisons and Class Size

Small classes make a difference in student achievement in early grades. The differences are most easily shown by comparisons of student outcomes in smaller classes with outcomes of students in larger classes, especially on standardized or normed indicators. As smaller classes become the norm in early education, student performance will increase but now that all students are performing at higher levels, the standardized tests will be normed upward once again, for not to do so would realize the Lake Woebegone desideratum "where all the children are above average." Once more adults will have pushed children to higher levels of performance and then, through statistical manipulation will find reason to complain that half of the students are below average, that US schools are sub par, teachers are low quality, and public education costs too much. The faults is not so much with education, educators, and children as with the measurement processes used to gauge education and in the misunderstanding of the value, use, and meaning of standardized tests. Small classes can only do so much. People must understand that if small classes become widely used, the complaint about lack of student performance will likely be a complaint about a higher level of performance than before small classes became prevalent. Students may benefit, but now they may have to run even faster just to stay even.

Let's Get on with A Better Way.

American education has been suffering neglect from tax abatements, media attacks, and unrealistic comparisons to outcomes in other nations; from declining facilities, class-size increase creep, inattention to research results, unfunded liabilities (e.g., Michigan's Durant Case in which the state did not provide special education funding for requirements promulgated by policy folks), faddism, political and polemic pronouncements (ad nauseam). There must be a better way to conduct education, but beset by so many special interests and negativism, education is much like Winnie The Pooh (alias Edward Bear) that readers meet on the very first page:

> Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin. It is, as far as he knows, the only way of coming downstairs, but sometimes he feels that there really is another way, if only he could stop bumping for a moment and think of it. And then he feels that perhaps there isn't. (p. 1)
>
> A. A. Milne, *Winnie The Pooh.*

In Conclusion

Dateline. May, 1997. Anne Lewis reported that Marshall Smith, acting deputy secretary in the U.S. Department of Education told an AERA audience in Chicago (3/97) that "We know kids can learn at much higher levels if we give them more opportunities to learn." [Kappan, 78 (9), p. 671].

I don't know what the acting deputy secretary knew then, but I do know that small classes in K-3 provide the students "more opportunities to learn." When what to do is known, how to do it should take precedence. Let's try!

If we've not had really serious discussions on class size issues and implications before, at least let's get serious about a research-driven base for major policy shifts in American education. We have knowledge about one scientifically-validated way to improve early schooling for children. Small K-3 classes offer Quality, Equality, and Equity. How to do what research shows should be done is a fair question for enlightened policy discussions, political decisions, educational leadership and new education studies. These positive steps will require a collective natural wisdom. Time is wasting.

Table 1. Sample of Selected Small-class Research Outcomes That Support The Effective-School Correlates. (Effective School Report, 1995)

Effective School Correlate	Small-Class Outcome
1. Acquisition of basic skills	Students in small classes, K-3 get .3 to .7 effect size (ES) test-score gains over students in larger classes on test scores.
2. High expectations	Teachers express high morale and describe student success.
3. Frequent monitoring of progress	Teachers read with each child each day. Individual work identifies and remediates problems. Students don't get lost or behind.
4. A positive climate for learning	Less crowding, more sharing, fewer disruptions and discipline referrals.
5. Sufficient opportunity for learning	Increased time on task and one-on-one time with teacher. Decreased classroom management problems.
6. Parental and community involvement on a partnership basis	Increased parent involvement, volunteer efforts, attendance at school events (PTA, open house, etc.). Opportunities for space partnerships, such as employment-based early primary spaces.
7. Strong school leadership	Not directly measured. The small-class effort requires creative and strong leadership.

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